ACCESSION NR: AP3003785

factor, λ - x-ray wavelength, V - volume of elementary cell, p - recurrence factor. Using these definitions plus the fact that the x-ray diagrams of partially oriented polymers are superpositions of the texture x-ray diagram upon the Debye x-ray diagram, the formula to determine n_{or} yields

$$n_{or} = \frac{4\pi m^2 c^4 V^2 I_{text} \cdot \sqrt{\sin^2\alpha - \cos^2 2\theta}}{e^4 \lambda^3 I_0 F^2_{hkl} \cdot p_{text} \delta V_0 (1 + \cos^2 2\theta)}$$

where θ - Breggov reflection angle and α - angle between scattered beam and texture axis. "The authors are grateful to A. I. Kitaygorodskiy for his interest in this work." Orig. art. has: 11 formulas and 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Organoelemental Compounds, AN SSSR)

SUBMITTED: 06Dec61 DATE ACQ: 08Aug63 ENCL: 00

SUB CODE: SS NO REF SOV: 003 OTHER: 001

Card 2/2

KIPATGORODSKIY, [illegible]; [illegible]ANKIN, D.Ya.

Structure of cellulose. Part 2. Vysokom.soed. 1 no.2:279-286 F '59. (MIRA 12:10)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Cellulose)

SOV/70-4-4-30/34

AUTHORS: Kitaygorodskiy, A.I. and Tsvankin, D.Ya.

TITLE: One-dimensional Diffraction in X-ray Diffraction Patterns from Polymers

PERIODICAL: Kristallografiya, 1959, Vol 4, Nr 4, pp 625-627 (USSR)

ABSTRACT: Theoretical. One-dimensional diffraction showing an intensity distribution spread out continuously along layers in reciprocal space is sometimes encountered for systems of chains which are parallel but otherwise disordered. It is, however, shown here that one-dimensional scattering can occur when there are only slight departures from strict three-dimensional order due to defects in the packing of chains. The effects of distunbances of the proper inter-chain distances in the equatorial plane and the displacements of the chains parallel to their axes is examined. It is assumed (A) that the packing defects consist of the chance departures of the chain axes from the positions they would have in the ideal lattice or (B) that the defectiveness of the packing increases in a radial direction. The result for (A) is analogous to that

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One-dimensional Diffraction in X-ray Diffraction Patterns from Polymers

obtained for isotropic thermal vibrations but there is a supplementary term causing the intensity to be distributed in layer lines. For the zero layer, the intensity falls off at large and at small angles and for higher layers it decreases with distance from the meridian. For (B) the diffraction field will get narrower but the lines will become wider than in the first case. If the disturbance to the long-range order increases, then on the zero layer the scattering will become of the gaseous type with an increase at low angles. Thus, if such a disturbance occurs then a continuous intensity distribution along the layer lines arises, because of the one-dimensional diffraction of the separate chains.
There are 4 references, of which 2 are Soviet, 1 German and 1 English.

Card 2/3

SOV/70-4-4-30/34

One-dimensional Diffraction in X-ray Diffraction Patterns from Polymers

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Insitute of Elemental-organic Compounds of the Ac.S., USSR)

SUBMITTED: March 15, 1959

Card 3/3

TSVANKIN, D. Ya.

[redacted]. X-Ray Diffraction by Systems of Long Molecules and One-Dimensional X-Ray Diffraction of Cellulose."

The Inst. of Organo-Element Compounds of the USSR Acad. of Sciences, Moscow, USSR.

paper submitted for 5th Gen. Assembly, Symposium on Lattice Defects, Intl. Union of Crystallography, Cambridge U.K. Aug 1960.

KITAYGORODSKIY, A.I.; TSVANKIN, D.Ya.; PETROV, Yu.M.

Large periods in enanthic fibers. Vysokom.soed. 3 no.9:1428 S '61. (MIRA 14:9)

(Polyamides)

33378
S/190/62/004/002/007/021
B101/B110

15.8080 1436

AUTHORS: Moskatov, K. A., Tsvankin, D. Ya.

TITLE: Change in the structure of caprone on heat treatment

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 2, 1962, 201-206

TEXT: An X-ray study was made of two caprone resin specimens (6·4·55 mm, according to ГОСТ(GOST) 4648-56) after they had been treated with boiling water for up to 15 hrs. Specimen A was a product of the Kiyevskiy kombinat iskusstvennogo volokna (Kiyev Combine of Synthetic Fibers), specimen B was a product of the Klinskiy kombinat iskusstvennogo volokna (Klin Combine of Synthetic Fibers). The authors observed three types of intensity distribution (Fig. 3). The X-ray pictures of the original specimens showed type 2. After 15 hrs, type 1 was observed in A and B. In A this transition took place without intermediate state, in B a purely monoclinic structure (type 3) was observed after 7 hrs, after 10 hrs type 2, and after 5 hrs type 1 were observed. After 8 months the lines of hexagonal structure became more intense. The purely monoclinic structure is not stable. It gradually passes into the hexagonal structure while forming a texture. The calcula-

Card 1/0 3

Change in the structure of...

tion of the diffraction intensities from already published equations (Dokl. AN SSSR, 120, 1076, 1958) showed that with diffraction in regions containing 50 chains the maxima 200 and 002 are only slightly separated from each other, with 100 chains however, a distinct separation is observed. This calculation showed that the line intensities decrease which has, however, not been observed. Calculations made on the assumption that the deviation ΔQ from the ordinary interchain distance be proportional to this distance: $\Delta Q = kQ$, showed that for $k = 0.1$ the maxima merge without the intensity being reduced. Hence the distortion of the lattice of the chain centers in the equatorial plane and not the formation of groups containing 20-40 ordered chains is assumed to be the most probable reason of the line widening of the monoclinic structure. Transition 2 $\rightarrow$1 corresponds to a better ordering of the lattice in the equatorial plane and to the occurrence of well ordered regions with monoclinic structure besides hexagonal regions. A. I. Kitaygorodskiy is thanked for discussions. There are 4 figures and 14 references: 12 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: W. O. Baker, C. S. Fuller, J. Amer. Chem. Soc., 62, 3275, 1940; 64, 2399, 1942; 65, 1120,

Card 2/3

33510

S/190/62/004/002/007/021
B101/B110

Change in the structure of...

1943; D. R. Holmes, C. W. Bunn, S. J. Smith, J. Polymer Sci., 17, 159, 1955.

ASSOCIATION: Nauchno-issledovatel'skiy i eksperimental'no-konstruktorskiy institut prodovol'stvennogo mashinostroyeniya (Scientific Research, Experimental and Design Institute of Machine Construction for the Food Industry). Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds of AS USSR)

SUBMITTED: February 7, 1961

Fig. 3. Curves of intensity distribution in the region of the main interferences. Legend: (1) Two lines of monoclinic, and one of hexagonal structure; (2) line of hexagonal structure and wide circle formed by the merging of the two monoclinic lines; (3) two lines of monoclinic structure; ordinate, intensity in arbitrary units.

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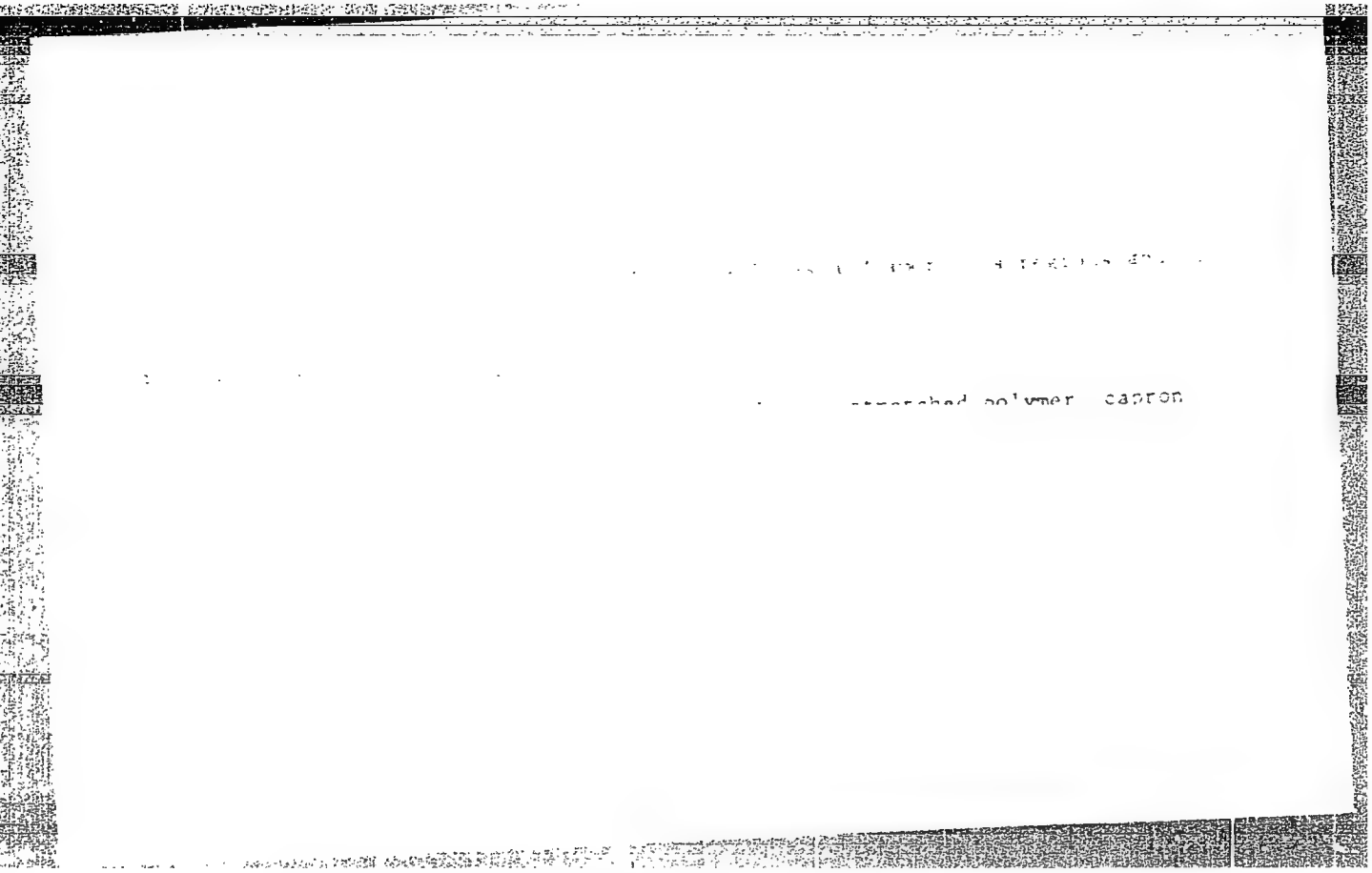
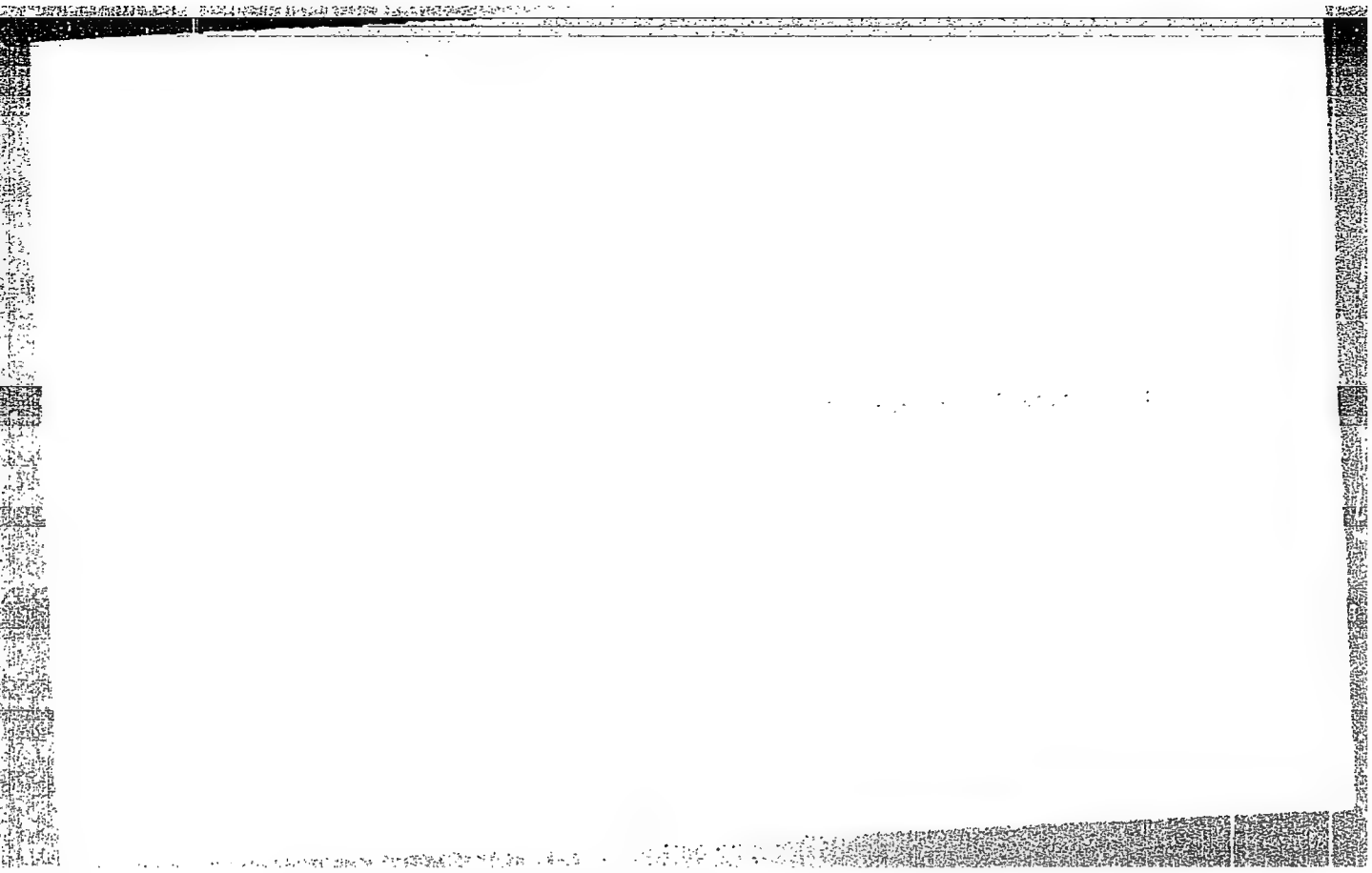
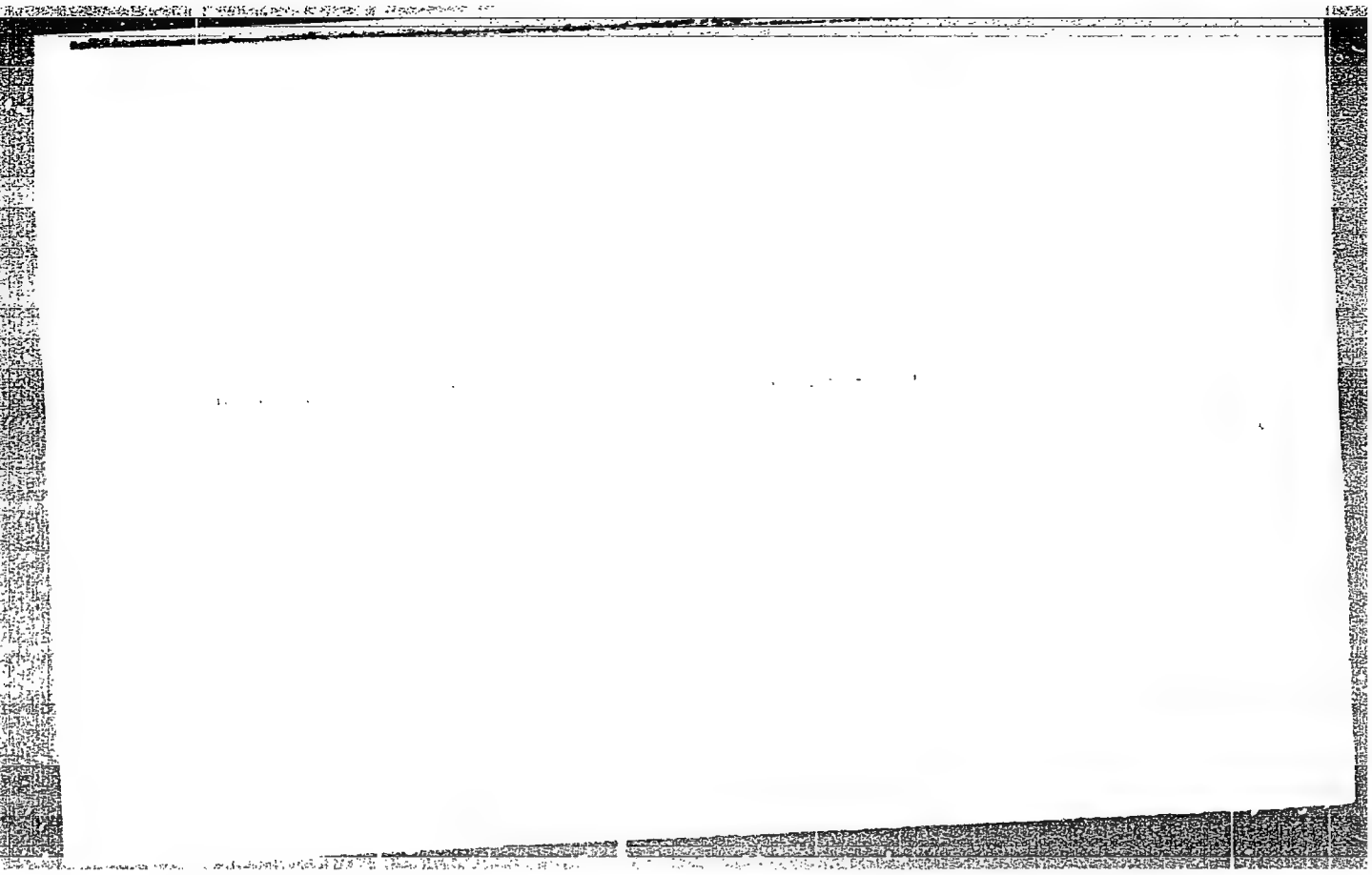
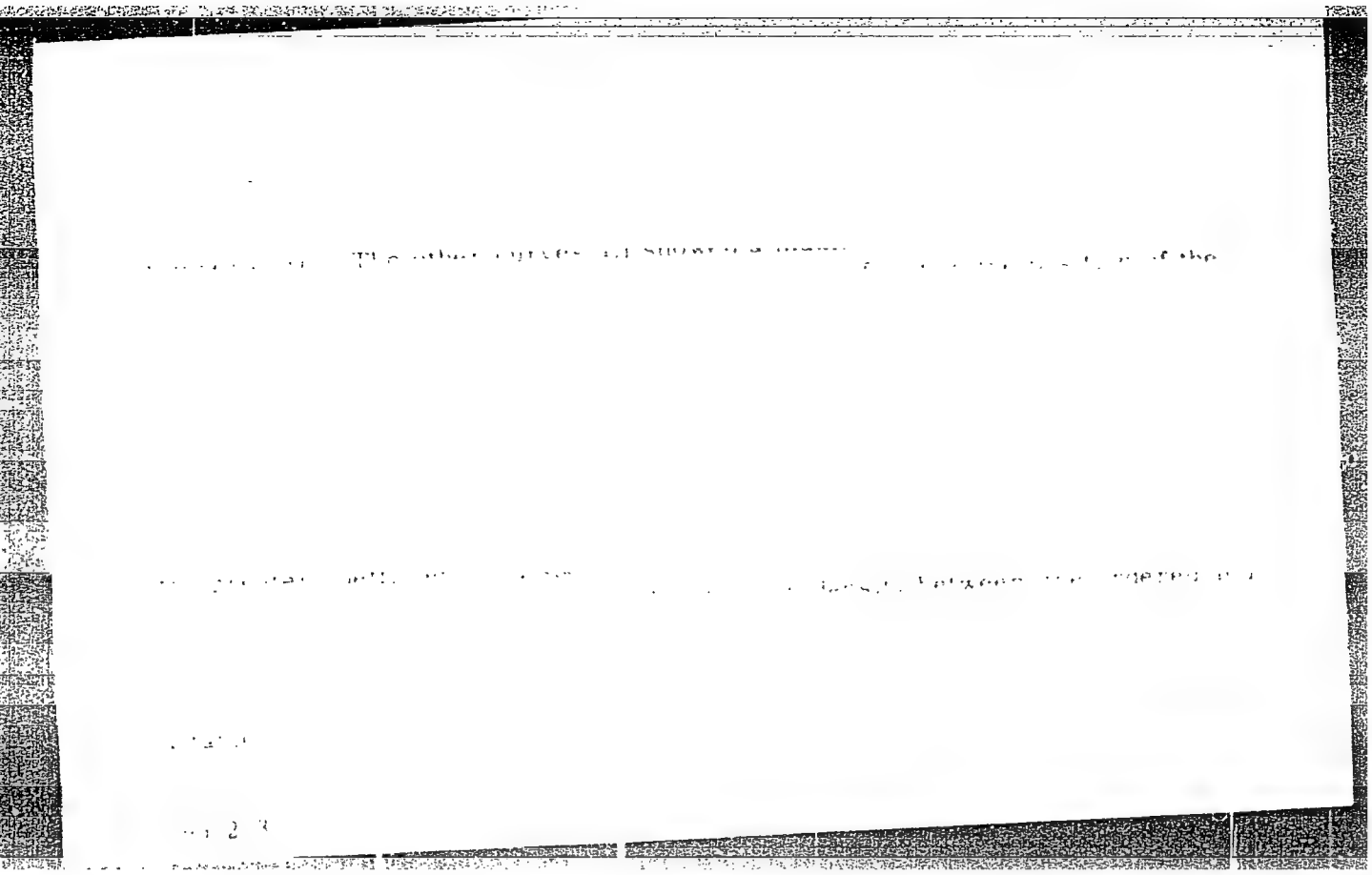


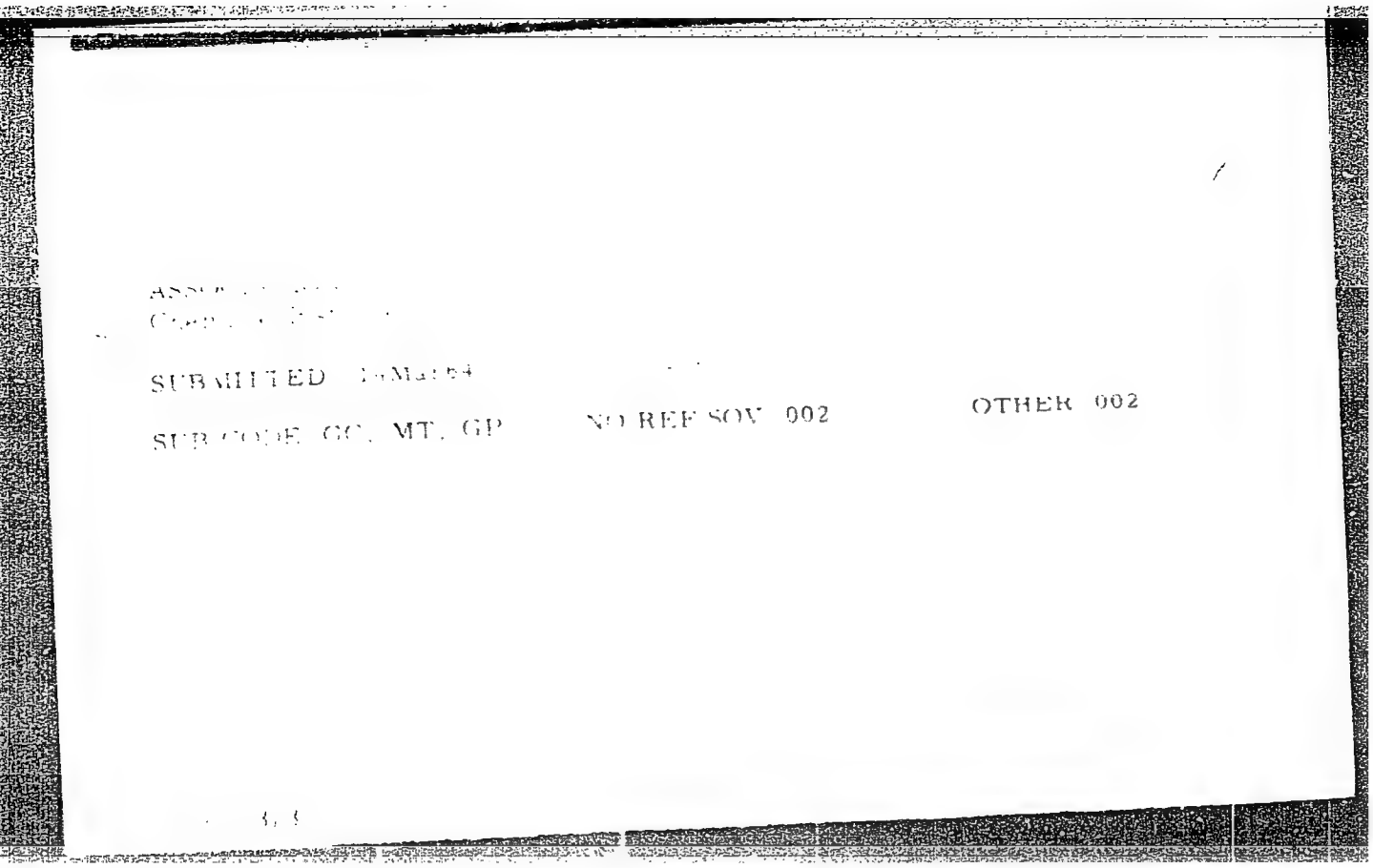


APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001757210018-9"



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001757210018-9"





SUBMITTED 16Mar84

SUB CODE GC, MT, GP NO REF SOV 002 OTHER 002

L 27330-66 EWT(m)/EWP(j)/T IJP(c) RM

ACC NR: AP6008961 SOURCE CODE: UR/0190/65/007/011/1848/1856

45
44
B

AUTHORS: Zubov, Yu. A.; Tsvankin, D. Ya.

ORG: Institute of Elementoorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedinenii AN SSSR); Institute of Physical Chemistry im. L. Ya. Karpov (Fiziko-khimicheskiy institut)

TITLE: Temperature-induced changes of the long period in oriented polymers. 2.

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 11, 1965, 1848-1856

TOPIC TAGS: x ray diffraction pattern, synthetic fiber, thermal effect

ABSTRACT: Reversible and irreversible changes in the structure of stretched polyethylene, caprone, and polypropylene fibers (resulting from thermal treatment) have been studied by means of small angle x-ray diffraction patterns. This work is an expansion of the observations discussed earlier by Yu. A. Zubov, D. Ya. Tsvankin, G. S. Markova, and V. A. Kargin (Dokl. AN SSSR, 157, 948, 1964). The experimental methods have been described by G. Kh. Razikov, Yu. A. Zubov, G. S. Markova, and V. A. Kargin (Vysokomolek. soyed., 5, 760, 1963). Studies of repeated heating-cooling experiments have shown that irreversible changes are due to the increase in

2

UDC: 678.01:53

Card 1/2

L 27330-66

ACC NR: AP6008961

the size of crystallites and amorphous areas occurring during annealing, while the reversible changes can be explained by differences in molecular mobility and thermal expansion in crystallites and amorphous areas, as well as by reversible recrystallization. "The authors express their gratitude to A. I. Kitaygorodskiy for evaluating the results and for many valuable suggestions." Orig. art. has: 1 table and 5 figures.

SUB CODE: 07, 11/SUBM DATE: 26Nov64/ ORIG REF: 005/ OTH REF: 004

Card 2/2

ZUBOV, Yu.A.; TSVANKIN, D.Ya.

Temperature-induced changes of the long period in oriented polymers. Part 2. Vysokom. soed. 7 no.11:1848-1856 N '65. (MIRA 19:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR i Fizikokhimicheskiy institut imeni L.Ya. Karpova, Moskva. Submitted November 26, 1964.

A L 11609-66 EWT(m)/EWP(j)/T RM

ACC NR: AP6001866 SOURCE CODE: UR/0190/65/007/012/2126/2131

AUTHORS: Andrichenko, Yu. D.; Druzhinina, T. V.; Zubov, Yu. A.; Konkin, A. A.; Tsvankin, D. Ya.

ORG: Moscow Textile Institute (Moskovskiy tekstil'nyy institut); Institute for Heteroorganic Compounds, AN SSSR (Institut elementoorganicheskikh soyedineniy, AN SSSR)

TITLE: Study of the structure and properties of polyethylene fibers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2126-2131

TOPIC TAGS: polymer, crystalline polymer, ~~linear polymer~~, polyethylene, elastic modulus, elasticity, molecular structure, solid mechanical property, synthetic fiber, X ray scattering

ABSTRACT: The influence of supermolecular structure on the mechanical properties of polyethylene fibers was studied. A particular emphasis was placed on the effect of stretching on the structural transformation of linear polyethylene fibers. The experiments were carried out at 110C. The structural changes were investigated by means of x-ray spectroscopy, birefringence, and density determinations. The interpretation of large angle x-ray scattering data was carried out by the method of D. Ya. Tsvankin (Vysokomolek. soyed., 6, 2078, 2083, 1964). Mechanical properties of the fibers determined as a function of the degree of stretching are presented in

Card 1/2 UDC: 678.01:53+678.742

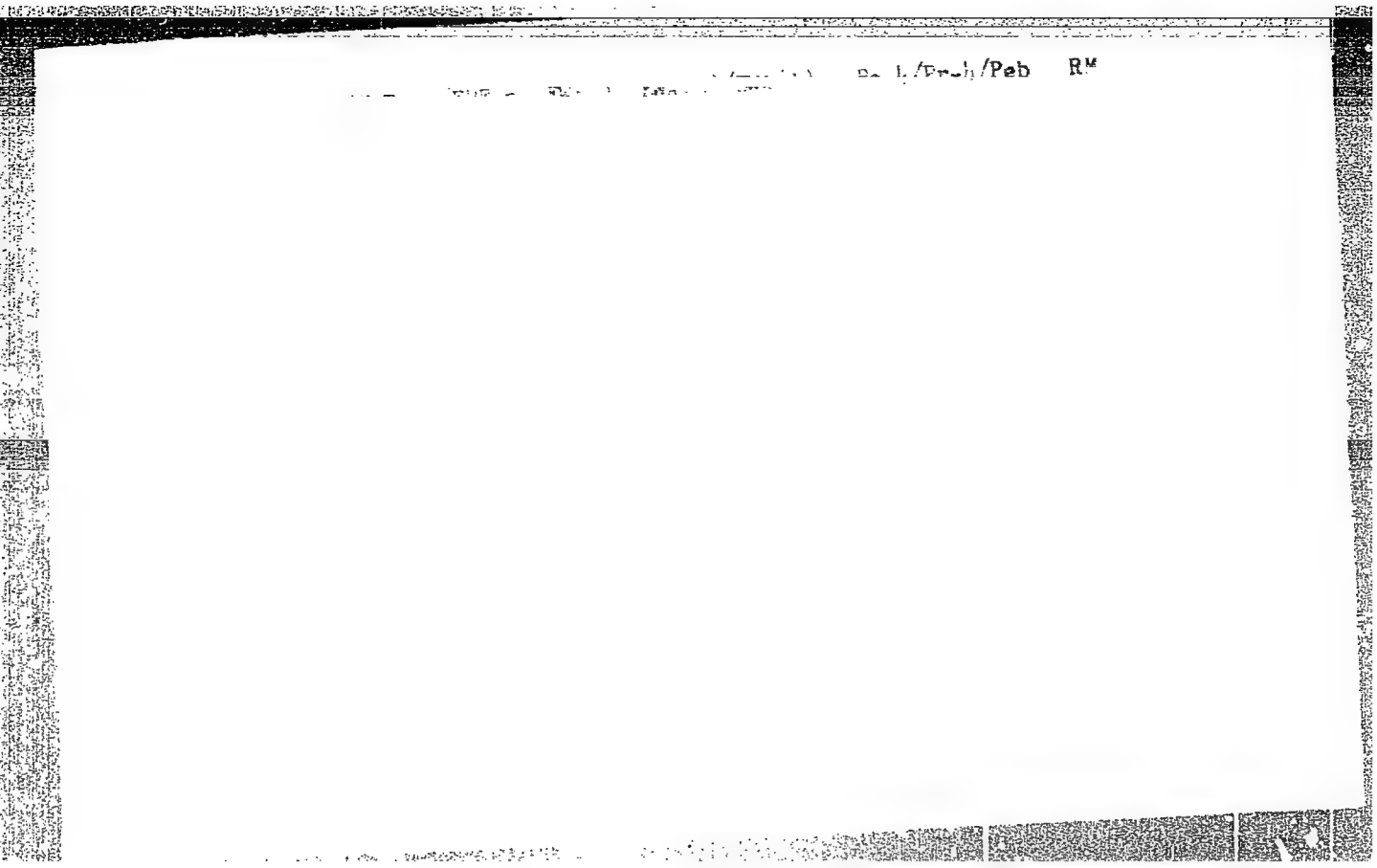
tables and graphs. It was found that complete orientation of crystallites was realized at 800% stretching. The so-called large period first decreases from 200 Å to 173 Å, and then increases to 212 Å with increase in the degree of stretching. At higher degrees of stretching, the intensity of the large period decreases sharply. It is suggested that the marked increase in the elasticity modulus which increases in the large period is associated with the orientation of crystallites and with the increased degree of crystallinity of the polymer fibers. Orig. art. has: 2 tables and 4 graphs.

SUB CODE: 11/ SUBM DATE: 26Jan65/ ORIG REF: 003/ OTH REF: 001

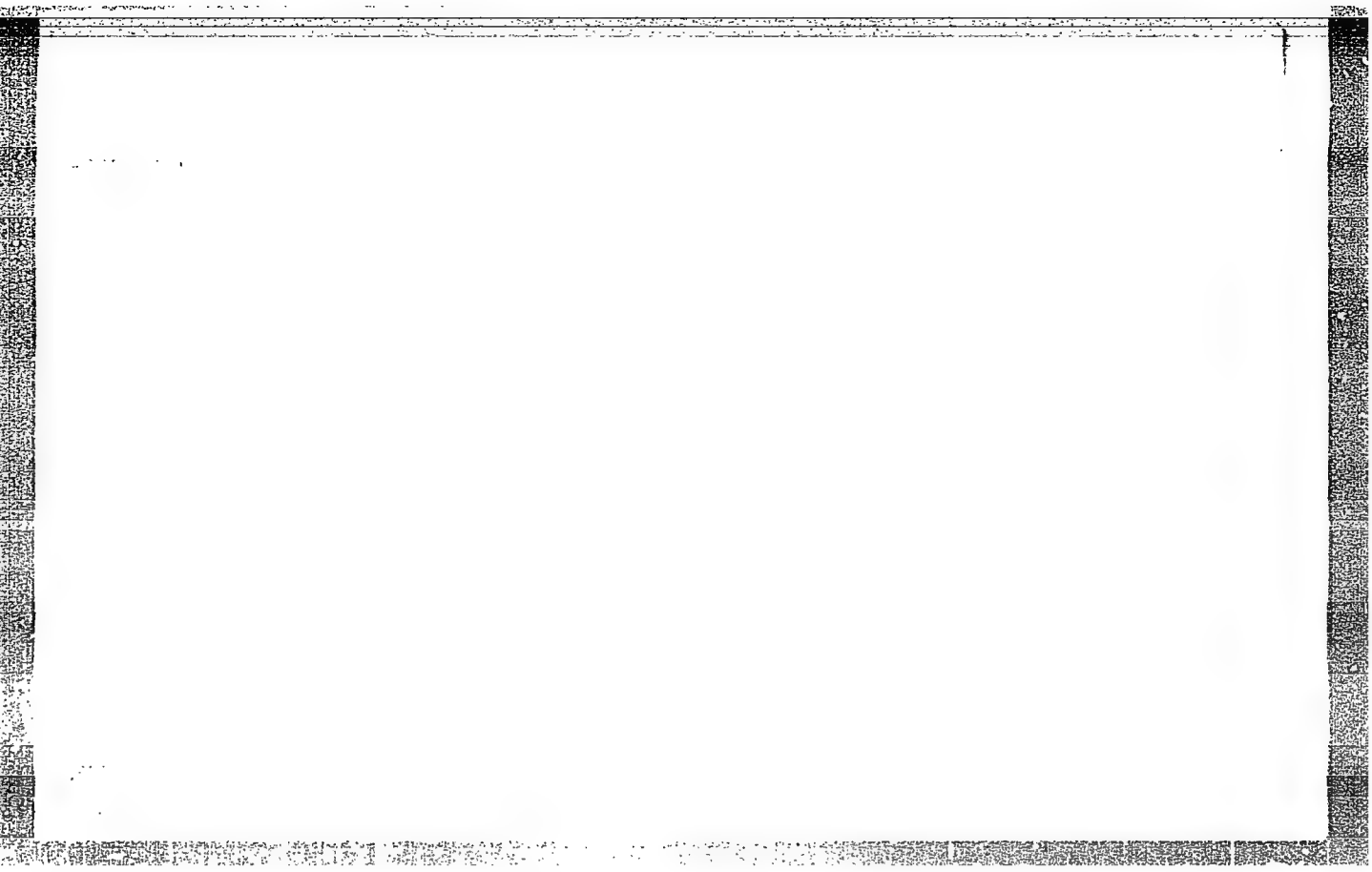
KAZARYAN, L.G.; TSVANKIN, D.Ya.

Amorphous texture of polyethylene terephthalate films. Vysokom. soed. 7 no.1:80-87 Ja '65. (MIRA 18:5)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001757210018-9"



APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001757210018-9"

TSVANKIN, D.Ya.

Diffraction on a linear system of crystallites: Long periods in polymers. Part 1. Vysokom. soed. 6 no.11:2078-2082 N '64 (MIRA 18:2)

Diffraction on ε linear system of crystallites: Long periods in polymers. Part 2. Ibid.:2083-2089

1. Institut elementoorganicheskikh soyedineniy AN SSSR.

ZUBOV, Yu.A.; TSVANKIN, D.Ya.; MARKOVA, G.S.; KARGIN, V.A.

Large periods in polypropylene fibers. Part 1: Effect of orientation and heat treatment (annealing) on the size of the large periods. Vysokom. soed. 6 no.3:406-411 Mr'64. (MIRA 17:5)

1. Nauchno-issledovatel'skiy fiziko-khimicheskiy institut imeni Karpova.

TAGER, Anna Aleksandrovna. Prinimali uchastiye: TSVANKIN, D.Ya.; BORISOVA, T.I.; BURSHTEYN, L.L.; SLINKIN, A.A.; DULOV, A.A.; MIKHAYLOV, G.P., red.; ROGAYLINA, A.A., red.; SHPAK, Ye.G., tekhn. red.

[Physical chemistry of polymers] Fiziko-khimiia polimerov. Moskva, Goskhimizdat, 1963. 528 p. (MIRA 16:12)
(Polymers)

KAZARYAN, L.G.; TSVANKIN, D.Ya.

X-ray diffraction study of the degree of orientation. Vysokom. soed. 5 no.7:976-978 Jl '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Polymers) (X rays—Diffraction)

KITAYGORODSKIY, A.I.; TSVANKIN, D.Ya.; PETROV, Yu.M.

Large periods in polyethylene terephthalate films. Vysokom.soed. 5 no.7:1062-1068 Jl '63. (MIRA 16:9)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Terephthalic acid)
(X rays--Scattering)

TSVANKIN, D.Ya.

Orientation of crystallites in a polyethylene terephthalate film. Part 2. Vysokom.soed. 5 no.1:129-134 Ja '63. (MIRA 16:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Polyethylene) (Terephthalic acid) (Crystallography)

TSVANKIN, D.Ya.

Orientation of crystallites in a polyethylene terephthalate film. Part 1. Vysokom.soed. 5 no.1:123-128 Ja '63. (MIRA 16:1)

1. Institut elementoorganicheskikh soyedineniy AN SSSR.
(Polyethylene) (Terephthalic acid) (Crystallography)

MOSKATOV, K.A.; CVANKIN, D.J. [Tsvankin, D.Ya.]; VLK, Oldrich [translator]

Changes in the structure of capron in thermal processing. Chem prum. 12 no.11:625-628 N '62.

1. Vedeckovyzkumny a konstrukcni ustav potravinarskych stroju, Moskva, (for Moskatov). 2. Institut zakladnich organickych latek, Akademie ved SSSR, Moskva (for Cvankin). 3. Vyzkumny ustav syntetickych pryskyric a laku, Pardubice (for Vlk).

KAZARYAN, L.G., TSVANKIN, D.Ya., ROGOVINA, L.Z.

Study of the orientation process during deformation of polypropylene

Report presented at the 13th Conference on the high-molecular compounds
Moscow, 8-11 Oct 62

KORSHAK, V.V.; TSVANKIN, D.Ya.; KRUKOVSKIY, S.P.

Polyethylene terephthalate films (lavsan) with grafted polystyrene. Dokl. AN SSSR 146 no.6:1347-1348 O '62.
(MIRA 15:10)

1. Chlen-korrespondent AN SSSR (for Korshak).
(Terephthalic acid) (Polyethylene) (Styrene polymers)

S/190/63/005/001/016/020
B101/B186

AUTHOR: Tsvankin, D. Ya.

TITLE: Orientation of crystallites in polyethylene terephthalate film. I

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 123-128

TEXT: To obtain full information on the dispersion of orientation of crystallites in stretched polyethylene terephthalate film, the known method of pole figures for studying the structure of metals and alloys was used. Two series of x-ray pictures were taken, one of a specimen cut out of the film parallel to the stretch axis, the other of a specimen cut out of the pendicularly to this. Pole figures were constructed for the vectors lying in the film plane, $\vec{H}_{\bar{1}05}$, which forms an angle of ~50 with the stretch axis, $\vec{H}_{100}$, which is perpendicular to $\vec{H}_{\bar{1}05}$, and the auxiliary vectors $\vec{H}_{\bar{1}03}$, $\vec{H}_{010}$, and $\vec{H}_{\bar{1}10}$ lying in a plane perpendicular to the film plane. The pole figures of $\vec{H}_{100}$ and $\vec{H}_{\bar{1}05}$ consist of two regions characterizing the orientation

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Orientation of crystallites...

of all crystallites in the film. The pole figures of $\vec{H}_{010}$, $\vec{H}_{\bar{1}10}$, and $\vec{H}_{\bar{1}03}$ consist of four regions, each pair of regions characterizing the orientation of half of the crystallites. A discussion of the resulting pole figures will follow in another paper. There are 4 figures. The most important English-language reference is: C. Barett, Structure of Metals, New York, 1957.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR (Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: August 29, 1961

Card 2/2

S/190/63/005/001/017/020
B101/B186

AUTHOR: Tsvankin, D. Ya.

TITLE: Orientation of crystallites in polyethylene terephthalate film. II

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 5, no. 1, 1963, 129-134

TEXT: On the basis of his previous paper (Vysokomolek. soyed., 5, 123, 1963) describing the method of constructing pole figures from x-ray pictures, the author deals here with the shape of pole figures of the vectors $\vec{H}_{\bar{1}05}$, $\vec{H}_{100}$, $\vec{H}_{\bar{1}03}$, $\vec{H}_{010}$, and $\vec{H}_{\bar{1}10}$ which were drawn for stretched polyethylene terephthalate film. The pole figure of $\vec{H}_{\bar{1}05}$ which characterizes the distribution of the axes of macromolecules consists of elongated regions along the central meridian of projection lying in the film plane. The pole figure of $\vec{H}_{100}$ is made up of two ellipses with the major axis lying in the equator of projection. The pole figure of $\vec{H}_{\bar{1}03}$ consists of two ellipses on the equator, on both sides of the points where the equator

Card 1/2

intersects the central meridian. The pole figures of $\vec{H}_{010}$ and $\vec{H}_{\bar{1}10}$ are circles with an elliptic bulge, toward the intersection equator - central meridian for the former vector and away from the intersection resembling horizontal drops for the latter. The pole figure of $\vec{H}_{105}$ shows that the main quantity of macromolecules are oriented nearly in the same direction, while a small group of macromolecules shows arbitrary orientations. A comparison of the pole figures of $\vec{H}_{100}$ with $\vec{H}_{010}$ and $\vec{H}_{\bar{1}10}$ shows that one half of the crystallites are turned in one direction by $\vec{H}_{\bar{1}05}$, the other half in the opposite direction. The straggling amplitude attains 40°. The straggling around the axis perpendicular to $\vec{H}_{100}$ and $\vec{H}_{\bar{1}05}$ is only 10-15°. The structure consists of two incomplete axial structures, the axes of which are the axis of the macromolecules and the normal to the film plane. There are 2 figures.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy AN SSSR
(Institute of Elemental Organic Compounds AS USSR)

SUBMITTED: August 29, 1961

BERESTNEVA, G.L.; TSVANKIN, D.Ya.; KOZLOV, P.V.

Effect of stretching on the structure and properties of polyethylene-terephthalate films. Part 5: X-ray diffraction studies of crystallization processes occurring in uniaxially oriented films. Vysokom.-soed. 3 no.12:1787-1793 D '61. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut i Institut elementoorganicheskikh soyedineniy AN SSSR.
(Ethylene polymers) (Crystallization)

54460
15840

41738
S/020/62/146/006/012/016
B106/B186

AUTHORS: Korshak, V. V., Corresponding Member AS USSR, Tsvankin, D. Ya., Krukovskiy, S. P.

TITLE: Investigation of polyethylene terephthalate (Lavsan) foils with grafted polystyrene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no. 6, 1962, 1347-1348

TEXT: With a view to investigating how much the structure of a polymer foil is affected by grafting another polymer onto the same, the following grafting experiments were made: amorphous layers of polystyrene of different thicknesses were grafted onto two 28-μ thick crystalline foils of polyethylene terephthalate by keeping the mixture of both compounds at 80°C for 3 and 8 hrs, respectively, in a nitrogen atmosphere together with styrene. Results: after heating the mixture for 3 hrs, a foil 46 μ thick with a yield of 20.95% (by weight of the initial foil) of grafted polystyrene was obtained and after heating the same for 8 hrs, a foil, 143 μ thick with a yield of 195% was the result. For control purposes, two foils were prepared by laminating the same original materials in a simple manner, using

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the same proportions by weight. X-ray pictures of the two grafted samples were compared with the two control samples. In addition, cross-sectional photographs of the grafted samples were examined. The polyethylene terephthalate foil was found to remain unaffected by the grafted polystyrene. This indicates that the major part of crystals of the initial foil does not participate in the grafting process and that neither the structure nor the relative orientation of crystallites in the foil is disturbed. The cross-sectional photographs revealed a comparatively sharp boundary between the grafted layer of polystyrene and the initial foil. The transition zone is considerably smaller than the thickness of the grafted layer. All this shows that grafting occurs only in an extremely thin surface layer of the foil. The polymer used for grafting will not penetrate farther into the base foil even if its thickness is increased. There are 2 figures.

SUBMITTED: June 5, 1962

MOSKATOV, K.A.; TSVANKIN, D.Ya.

Changes in the structure of capron on thermal treatment. Vysokom.-soed. 4 no.2:201-206 F '62. (MIRA 15:4)

1. Nauchno-issledovatel'skiy i eksperimental'no-konstruktorskiy institut prodovol'stvennogo mashinostroyeniya i Institut elementoorganicheskikh soyedineniy AN SSSR.
(Nylon)

TSVAIGEL', YU. A.

USSR/Engineering

Card 1/1 FD 274

Authors : Gubkin, S. I., Active Member, and Yu. A. Tsvaygel',

Title : Deformability of bronzes in pressure working

Periodical : Iz. Ak. Nauk SSSR, OTN, 1, 128-137, Jan 1954

Abstract : Presents results of experimental study of mechanical and technological properties of the three standard copper-base alloys: aluminum-iron bronze BrAZh9-4, beryllium bronze BrB2, and tin-phosphorous bronze BrOF7-0.2. Establishes optimum temperature ranges for hot working. Gives properties from 20° C to 900° C under various types of load. Tables, graphs.

Institution : Academy of Sciences of the Belorussian SSR

Submitted : March 11, 1953

TSVAYGEL, Yu, A.

(5) 4

11579* Deformability of Pressure Worked Bronzes. (Russian.) S. I. Gubkin and Ju. A. Tsvaigel. *Izvestiia Akademii Nauk SSSR, Otdelenie Tekhnicheskikh Nauk*, 1954, no. 1, Jan. 1, p. 128-137.

Investigation of Al-Fe, Be, and Sn-P bronzes from 20 to 900 C. Tables, graphs. 1 ref.

OSTROVITYANOV, Emiliy Mikhaylovich; IVANOV, Boris Yakovlevich; AFANAS'YEV, A.A., retsenzent; ZASLAVSKIY, M.A., retsenzent; SHVETSOVA, T.P., retsenzent; TSVAYGENBAUM, B.M., retsenzent; MELIKSET'YAN, M.A., retsenzent; MINAYEVA, T.M., redaktor; POPOVA, T.G., tekhnicheskiy redaktor

[Technology of footwear; assembling uppers, molding, sewing and finishing processes] Tekhnologiia obuvi; sborka zagotovok, formovochnye, poshivochnye i otdelochnye protsessy. Moskva, Gos. nauchno-tekhn. izd-vo M-va legkoi promyshl. SSSR, 1956. 391 p. (MLRA 10:5)

(Shoe industry)

TSVAYNER, Ya.P.; GRIGOR'YEVA, N.P.

Abberant mammary gland on labium majus. Akush. i gig. 33 no.2: 89-90 Mr-Ap '56. (MLRA 9:7)

1. Iz ginekologicheskogo otdeleniya Sorikskoy gorodskoy bol'nitsy (glavnyy vrach F.P.Zatvornitskiy) i respublikanskogo onkologicheskogo dispansera (glavnyy vrach G.B.Khonelidze)
(VULVA) (MAMMARY GLANDS)

TSVANTSINGER B. INZH.-TEKHNOLOG

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FDB 28T76

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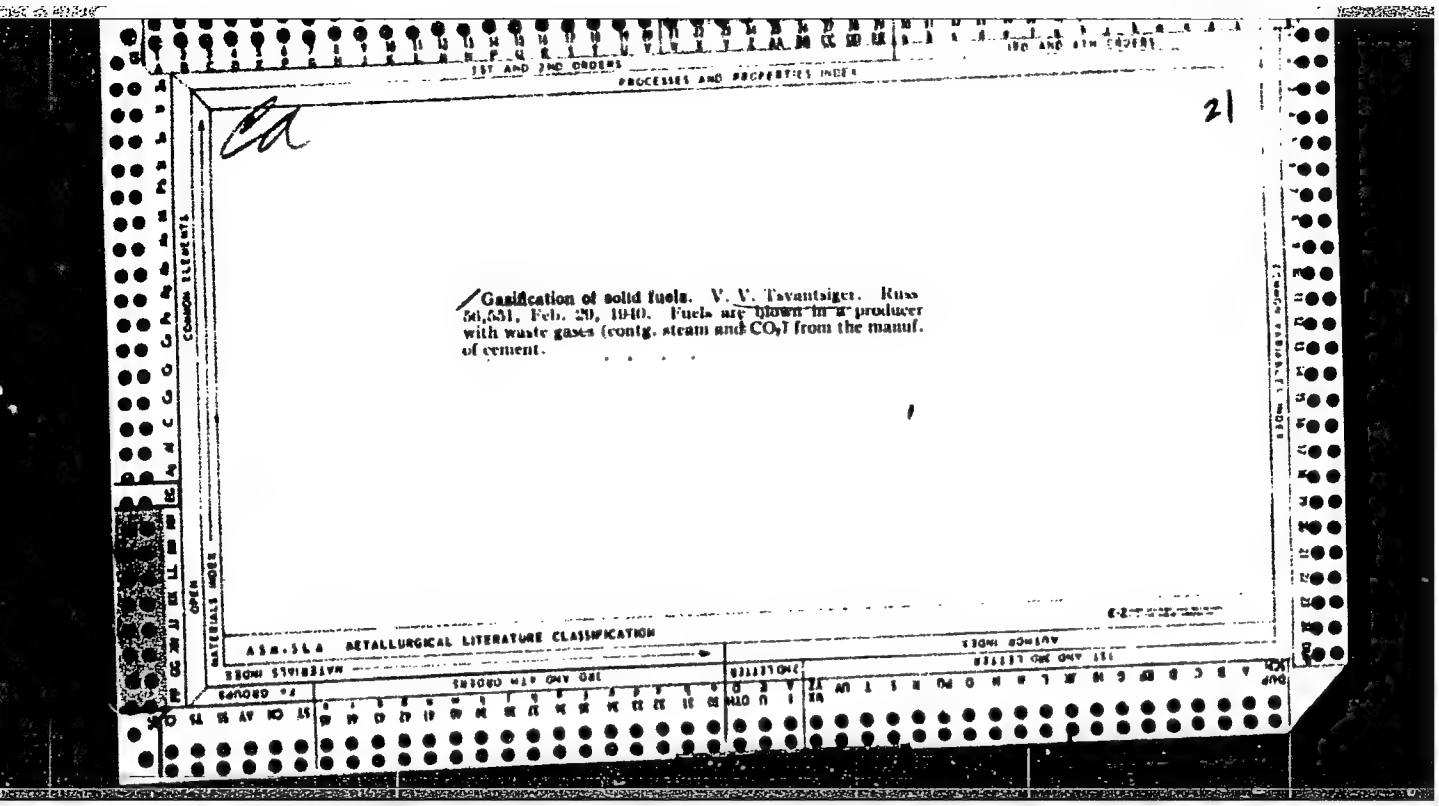

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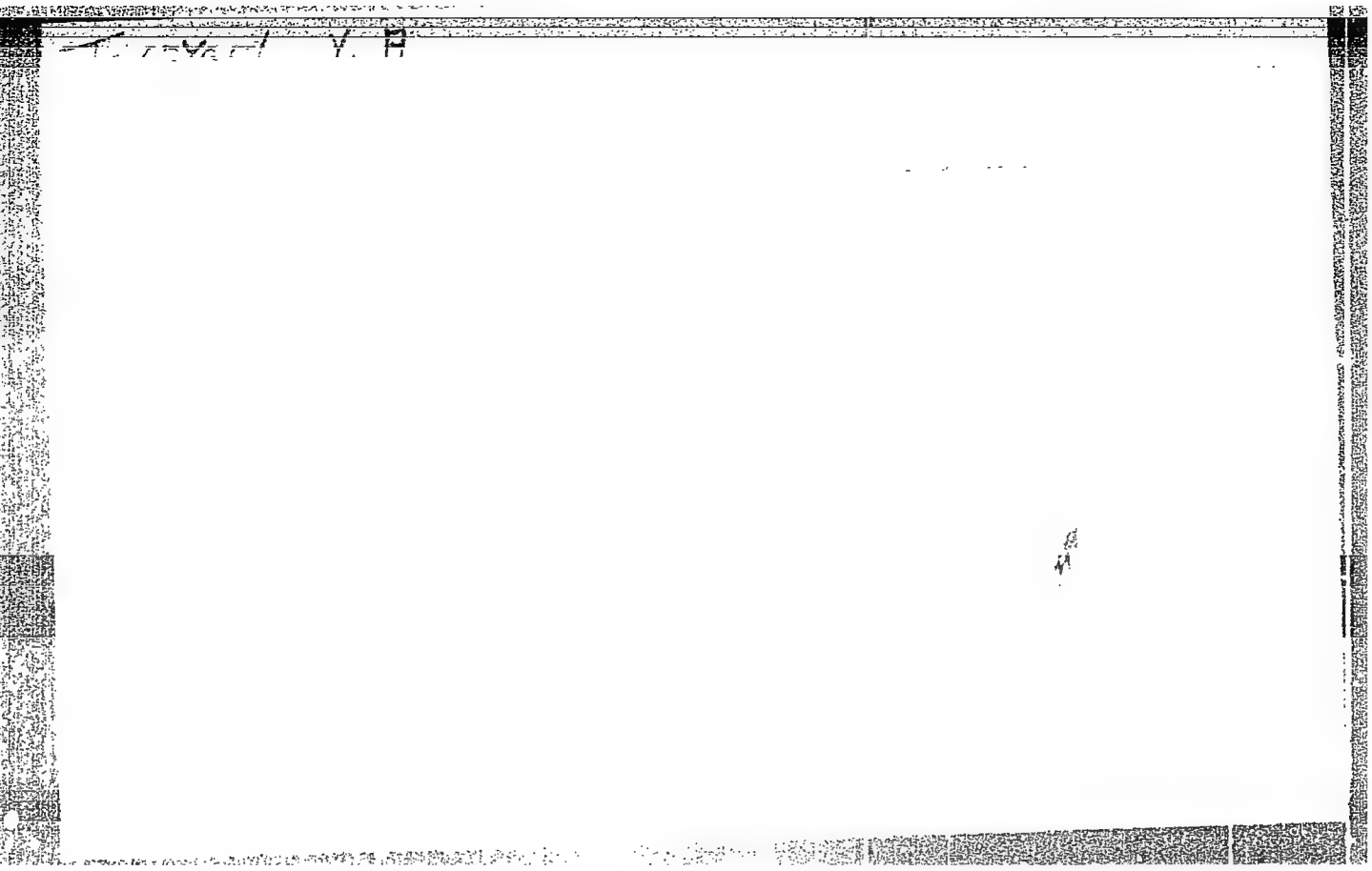
[illegible] were carried out with static and dynamic pressure [illegible] processing of bronze (Al-Fe, Fe and Sn-P) at various [illegible] temperatures. [illegible] optimum temperature intervals have been [illegible] that the [illegible] (111,1)



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